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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,533	07/22/2003	Eric R. Fossum	M4065.0841/P841-A	4895
24998	7590	08/25/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			SEFER, AHMED N	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2826	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/623,533

Applicant(s)

FOSSUM ET AL.

Examiner

A. Sefer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-25, 27-33 and 53-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-25, 27-33 and 53-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.



**Minhloan Tran**  
**Primary Examiner**  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on June 15, 2005 has been entered. Claim 26 has been cancelled and new claims 53-58 have been added.

### ***Response to Arguments***

2. Applicant's arguments filed 6/15/2005 have been fully considered but they are not persuasive.
3. Applicants argue that the relevant portions on which the rejection was based are not present in the provisional application 60/184501 from which Anderson USPN 6,859,227 claims priority. The Examiner respectfully disagrees. As is shown in the provisional application (fig. 2) it is clearly shown that each row of pixels being provided with its own reset and row selection signals which would read into the recited limitation of claim 22.

### ***Specification***

4. The disclosure is objected to because of the following informalities: The recitation "wherein said **said** separated ..." of claim 23 should read "wherein said separated ...".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 55 and 56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not

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described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The application as originally filed does not specifically support the claim limitation “further comprising the act of forming a second well region surrounding said photosensor”. The specification merely discloses first well and second well surrounding said photosensor (fig. 4).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 23-33, as understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et al. (“Anderson”) USPN 6,859,227.

The applied reference has a common assignee/inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

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Anderson discloses in fig. 1 a method, comprising: receiving a photoelectrically induced signal in an array of photoreceptors 60/84 (fig. 3A) on a semiconductor substrate; controlling each photoreceptor in the array of photoreceptors to simultaneously initiate a common integration period (col. 2, lines 42-46, col. 3, lines 43-50 and col. 4, lines 29-39); at the end of each integration period, controlling each photoreceptor in the array of photoreceptors to transfer its photoelectrically induced signal to a separated storage node 54; and preventing said separated storage node from integrating charge (col. 4, lines 23-28).

Regarding claim 23, Anderson discloses in figs. 3 and 4 forming said separated storage node being separated from said photoreceptor by a semiconductor well within the semiconductor substrate.

Regarding claim 24, Anderson discloses forming said separated storage node with a light shield overlying at least said separated storage node (col. 4, lines 23-28).

Regarding claim 25, Anderson discloses forming said separate semiconductor well with a light shield overlying said semiconductor well (col. 4, lines 23-28).

Regarding claim 26, Anderson discloses said preventing comprises shielding said separated storage node from incoming light (col. 4, lines 23-28).

Regarding claim 27, Anderson discloses (col. 2, lines 6-17 and claim 2) enabling a first reset operation which resets a value of said storage node 54, and enabling a second reset operation, which resets a value of said photoreceptor 84.

Regarding claim 28, Anderson discloses said first and second reset operations each comprises activating a gate within said separate semiconductor well.

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Regarding claim 29, Anderson discloses said photoelectrically induced signal is a signal indicative of charge produced by said photoreceptor during said integration period.

Regarding claim 30, Anderson discloses (col. 3, lines 28-42) said photoreceptor includes a photodiode.

Regarding claim 31, Anderson discloses (col. 1, 32-40) said photoreceptor includes a photogate.

Regarding claim 32, Anderson discloses, preventing said photoreceptor from acquiring a photoelectrically induced signal which is greater than a predetermined amount (col. 4, lines 23-28).

Regarding claim 33, Anderson discloses in fig 3A forming a second separated semiconductor well for each of the plurality of photoreceptors in the array.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 53-55 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan US PG-Pub 2002/0022295 in view of Nakashiba USPN 6,498,622.

Pan discloses in figs. 2-8 forming a photosensor 40 in a substrate, the photosensor for forming charges in response to applied light; forming a first well 34 region in the substrate, the first well region being separated from the photosensor and being doped to a first conductivity

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type; forming a storage region 44 located in a first well region, the storage region for collecting charge generated by the photosensor and being doped to a second conductivity type, but lacks anticipation of a shielding layer over the storage region.

Nakashiba discloses in fig. 4 a photosensor including shielding at least a portion of a storage region 206 by forming a shielding layer 200 over the storage region.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Pan's photosensor by incorporating a shielding layer since that would provide a high voltage output as taught by Nakashiba.

Regarding claim 54, Pan discloses (par. 0022) the storage region comprising a p-type region and the first well region comprises an n-well. 55.

Regarding claim 55, as understood, Pan discloses a second well region 44 surrounding said photosensor.

Regarding claim 58, Nakashiba discloses forming a photosensor comprising one of forming a photodiode and forming a photogate.

11. Claims 53-55 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan US PG-Pub 2002/0022295 in view of Fossum WO 97/28558.

Pan discloses in figs. 2-8 forming a photosensor 40 in a substrate, the photosensor for forming charges in response to applied light; forming a first well 34 region in the substrate, the first well region being separated from the photosensor and being doped to a first conductivity type; forming a storage region 44 located in a first well region, the storage region for collecting charge generated by the photosensor and being doped to a second conductivity type, but lacks anticipation of a shielding layer over the storage region.

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Fossum discloses in fig. 4 a photosensor including shielding at least a portion of a storage region 40 by forming a shielding layer 270 over the storage region.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Pan's photosensor by incorporating a shielding layer since that would avoid saturation bright objects and increase resolution of dim objects as taught by Fossum.

Regarding claim 54, Pan discloses (par. 0022) the storage region comprising a p-type region and the first well region comprises an n-well. 55.

Regarding claim 55, as understood, Pan discloses a second well region 44 surrounding said photosensor.

Regarding claim 57, Fossum discloses a metal light shield layer 270 over a well region (the region where storage region 40 is formed).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS

August 21, 2005